

2902076-1\_ST25.txt  
SEQUENCE LISTING

<110> The University of York  
<120> Expansion Polypeptides  
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<140> 10/573,245  
<141> 2006-03-23  
<150> PCT/GB04/04058  
<151> 2004-09-23  
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Thr Ser Ser Ser His Phe Ala Arg Ala Tyr Tyr Gly Gly Asp Gly Gly	
20 25 30	
tgg acc gat gcg cat gcg acc ttt tat ggc ggc agc gat gcg agc ggc	144
Trp Thr Asp Ala His Ala Thr Phe Tyr Gly Gly Ser Asp Ala Ser Gly	
35 40 45	
acc atg ggc ggc gcg tgc ggc tat ggc aac ctg tat agc cag ggc tat	192
Thr Met Gly Gly Ala Cys Gly Tyr Gly Asn Leu Tyr Ser Gln Gly Tyr	
50 55 60	
ggc acc aac acc gcg gcg ctg agc acc gcg ctg ttt aac aac ggc ctg	240
Gly Thr Asn Thr Ala Ala Leu Ser Thr Ala Leu Phe Asn Asn Gly Leu	
65 70 75 80	
agc tgc ggc agc tgc ttt gaa att aaa tgc gcg agc agc att agc ggc	288
Ser Cys Gly Ser Cys Phe Glu Ile Lys Cys Ala Ser Ser Ile Ser Gly	
85 90 95	
ggc ggc aaa tgg tgc ctg ccg ggc ggc agc att acc gtg acc gcg acc	336
Gly Gly Lys Trp Cys Leu Pro Gly Gly Ser Ile Thr Val Thr Ala Thr	
100 105 110	
aac ttt tgc ccg ccg aac aac gcg ctg ccg aac aac gcg ggc ggc tgg	384
Asn Phe Cys Pro Pro Asn Asn Ala Leu Pro Asn Asn Ala Gly Gly Trp	
115 120 125	
tgc aac ccg ccg ctg cag cat ttt gat ctg agc cag ccg gtg ttt cag	432
Cys Asn Pro Pro Leu Gln His Phe Asp Leu Ser Gln Pro Val Phe Gln	

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140

130

135

cat His 145	att Ile	gcg Ala	cag Gln	tat Tyr	cgc Arg 150	gcg Ala	ggc Gly	att Ile	gtg Val	ccg Pro 155	gtg Val	agc Ser	tat Tyr	cgc Arg	cgc Arg 160	480
gtg Val	ccg Pro	tgc Cys	cgc Arg	cgc Arg 165	cgc Arg	ggc Gly	ggc Gly	att Ile	cgc Arg 170	ttt Phe	acc Thr	att Ile	aac Asn	ggc Gly 175	cat His	528
agc Ser	tat Tyr	ttt Phe	aac Asn 180	ctg Leu	gtg Val	ctg Leu	att Ile	acc Thr 185	aac Asn	gtg Val	ggc Gly	ggc Gly	gcg Ala 190	ggc Gly	gat Asp	576
gtg Val	cat His	gcg Ala 195	gtg Val	agc Ser	att Ile	aaa Lys	ggc Gly 200	gcg Ala	acc Thr	acc Thr	gat Asp 205	tgg Trp	cag Gln	ccg Pro	atg Met	624
agc Ser	cgc Arg 210	aac Asn	tgg Trp	ggc Gly	cag Gln	aac Asn 215	tgg Trp	cag Gln	agc Ser	aac Asn	gcg Ala 220	aac Asn	ccg Pro	aac Asn	ggc Gly	672
cag Gln 225	cgc Arg	ctg Leu	agc Ser	ttt Phe	aaa Lys 230	gtg Val	acc Thr	acc Thr	agc Ser	gat Asp 235	ggc Gly	cgc Arg	acc Thr	ctg Leu	gtg Val 240	720
agc Ser	aac Asn	aac Asn	gtg Val	gcg Ala 245	ccg Pro	ccg Pro	aac Asn	tgg Trp	agc Ser 250	ttt Phe	ggc Gly	cag Gln	acc Thr	ttt Phe 255	gcg Ala	768
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Trp	Thr	Asp 35	Ala	His	Ala	Thr	Phe 40	Tyr	Gly	Gly	Ser	Asp 45	Ala	Ser	Gly
Thr	Met 50	Gly	Gly	Ala	Cys	Gly 55	Tyr	Gly	Asn	Leu	Tyr 60	Ser	Gln	Gly	Tyr
Gly 65	Thr	Asn	Thr	Ala	Ala 70	Leu	Ser	Thr	Ala	Leu 75	Phe	Asn	Asn	Gly	Leu 80
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Gly Gly Lys Trp Cys Leu Pro Gly Gly Ser Ile Thr Val Thr Ala Thr  
100 105 110

Asn Phe Cys Pro Pro Asn Asn Ala Leu Pro Asn Asn Ala Gly Gly Trp  
115 120 125

Cys Asn Pro Pro Leu Gln His Phe Asp Leu Ser Gln Pro Val Phe Gln  
130 135 140

His Ile Ala Gln Tyr Arg Ala Gly Ile Val Pro Val Ser Tyr Arg Arg  
145 150 155 160

Val Pro Cys Arg Arg Arg Gly Gly Ile Arg Phe Thr Ile Asn Gly His  
165 170 175

Ser Tyr Phe Asn Leu Val Leu Ile Thr Asn Val Gly Gly Ala Gly Asp  
180 185 190

Val His Ala Val Ser Ile Lys Gly Ala Thr Thr Asp Trp Gln Pro Met  
195 200 205

Ser Arg Asn Trp Gly Gln Asn Trp Gln Ser Asn Ala Asn Pro Asn Gly  
210 215 220

Gln Arg Leu Ser Phe Lys Val Thr Thr Ser Asp Gly Arg Thr Leu Val  
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tgc ggc tat ggc aac ctg tat agc acc ggc tat ggc acc aac acc gcg  
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Cys	Gly	Tyr	Gly	Asn	Leu	Tyr	Ser	Thr	Gly	Tyr	Gly	Thr	Asn	Thr	Ala		
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Ala	Leu	Ser	Thr	Ala	Leu	Phe	Asn	Asn	Gly	Leu	Thr	Cys	Gly	Ala	Cys		
		35					40					45					
tat	gaa	ctg	acc	tgc	aac	aac	gat	ccg	cgc	ggc	tgg	tgc	ctg	agc	ggc	192	
Tyr	Glu	Leu	Thr	Cys	Asn	Asn	Asp	Pro	Arg	Gly	Trp	Cys	Leu	Ser	Gly		
	50					55					60						
acc	att	atg	gtg	acc	gcg	acc	aac	ttt	tgc	ccg	ccg	aac	ccg	agc	ctg	240	
Thr	Ile	Met	Val	Thr	Ala	Thr	Asn	Phe	Cys	Pro	Pro	Asn	Pro	Ser	Leu		
65					70					75					80		
ccg	aac	gat	aac	ggc	ggc	tgg	tgc	aac	ccg	ccg	cgc	cag	cat	ttt	gat	288	
Pro	Asn	Asp	Asn	Gly	Gly	Trp	Cys	Asn	Pro	Pro	Arg	Gln	His	Phe	Asp		
				85					90					95			
ctg	gcg	gaa	ccg	gcg	ttt	ctg	cag	att	gcg	cag	tat	aaa	gcg	ggc	att	336	
Leu	Ala	Glu	Pro	Ala	Phe	Leu	Gln	Ile	Ala	Gln	Tyr	Lys	Ala	Gly	Ile		
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	130					135					140						
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Asn	Gly	Gly	Trp	Gln	Pro	Leu	Ser	Arg	Asn	Trp	Gly	Gln	Asn	Trp	Gln		
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Ser	Asn	Ser	Tyr	Leu	Asn	Gly	Gln	Ser	Leu	Ser	Phe	Gln	Val	Thr	Thr		
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Ser	Asp	Gly	Arg	Thr	Val	Thr	Ser	Tyr	Asp	Val	Ala	Pro	Arg	Gly	Trp		
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cag	ttt	ggc	cag	acc	ttt	gaa	ggc	ggc	cag	ttt						657	
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Cys Gly Tyr Gly Asn Leu Tyr Ser Thr Gly Tyr Gly Thr Asn Thr Ala  
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Ala Leu Ser Thr Ala Leu Phe Asn Asn Gly Leu Thr Cys Gly Ala Cys  
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Tyr Glu Leu Thr Cys Asn Asn Asp Pro Arg Gly Trp Cys Leu Ser Gly  
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Thr Ile Met Val Thr Ala Thr Asn Phe Cys Pro Pro Asn Pro Ser Leu  
65 70 75 80

Pro Asn Asp Asn Gly Gly Trp Cys Asn Pro Pro Arg Gln His Phe Asp  
85 90 95

Leu Ala Glu Pro Ala Phe Leu Gln Ile Ala Gln Tyr Lys Ala Gly Ile  
100 105 110

Val Pro Val Asn Tyr Arg Arg Val Pro Cys Gln Lys Lys Gly Gly Ile  
115 120 125

Arg Phe Thr Ile Asn Gly His Ser Phe Phe Asn Leu Val Leu Val Thr  
130 135 140

Asn Val Gly Gly Val Gly Asp Val His Ser Val Ser Ile Lys Gly Ser  
145 150 155 160

Asn Gly Gly Trp Gln Pro Leu Ser Arg Asn Trp Gly Gln Asn Trp Gln  
165 170 175

Ser Asn Ser Tyr Leu Asn Gly Gln Ser Leu Ser Phe Gln Val Thr Thr  
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acc gcg gcg ctg agc acc acc ctg ttt aac aac ggc ctg gcg tgc ggc Thr Ala Ala Leu Ser Thr Thr Leu Phe Asn Asn Gly Leu Ala Cys Gly 35 40 45	144
agc tgc tat cag gtg cgc tgc gaa ggc ggc ccg aaa tgg tgc gtg cgc Ser Cys Tyr Gln Val Arg Cys Glu Gly Gly Pro Lys Trp Cys Val Arg 50 55 60	192
ggc ggc gat cgc att att acc gtg acc gcg acc aac ttt tgc ccg ccg Gly Gly Asp Arg Ile Ile Thr Val Thr Ala Thr Asn Phe Cys Pro Pro 65 70 75 80	240
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cag cat ttt gat atg gcg cag ccg gcg ttt gtg cgc att gcg cat tat Gln His Phe Asp Met Ala Gln Pro Ala Phe Val Arg Ile Ala His Tyr 100 105 110	336
cgc gcg ggc att gtg ccg att agc tat cgc cgc gtg agc tgc gtg aaa Arg Ala Gly Ile Val Pro Ile Ser Tyr Arg Arg Val Ser Cys Val Lys 115 120 125	384
aaa ggc ggc att cgc ctg acc att aac ggc cat agc tat ttt aac ctg Lys Gly Gly Ile Arg Leu Thr Ile Asn Gly His Ser Tyr Phe Asn Leu 130 135 140	432
gtg ctg gtg agc aac gtg ggc ggc agc ggc gat gtg cat gcg gtg tgg Val Leu Val Ser Asn Val Gly Gly Ser Gly Asp Val His Ala Val Trp 145 150 155 160	480
att aaa ggc agc ggc ggc ggc ccg tgg cag gcg atg acc cgc aac tgg Ile Lys Gly Ser Gly Gly Gly Pro Trp Gln Ala Met Thr Arg Asn Trp 165 170 175	528
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&lt;223&gt; The 'Xaa' at location 207 stands for Glu, or Asp.

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Thr Ala Ala Leu Ser Thr Thr Leu Phe Asn Asn Gly Leu Ala Cys Gly  
35 40 45

Ser Cys Tyr Gln Val Arg Cys Glu Gly Gly Pro Lys Trp Cys Val Arg  
50 55 60

Gly Gly Asp Arg Ile Ile Thr Val Thr Ala Thr Asn Phe Cys Pro Pro  
65 70 75 80

Asn Tyr Ala Leu Ala Asn Asp Asn Gly Gly Trp Cys Asn Pro Pro Arg  
85 90 95

Gln His Phe Asp Met Ala Gln Pro Ala Phe Val Arg Ile Ala His Tyr  
100 105 110

Arg Ala Gly Ile Val Pro Ile Ser Tyr Arg Arg Val Ser Cys Val Lys  
115 120 125

Lys Gly Gly Ile Arg Leu Thr Ile Asn Gly His Ser Tyr Phe Asn Leu  
130 135 140

Val Leu Val Ser Asn Val Gly Gly Ser Gly Asp Val His Ala Val Trp  
145 150 155 160

Ile Lys Gly Ser Gly Gly Gly Pro Trp Gln Ala Met Thr Arg Asn Trp  
165 170 175

Gly Gln Asn Trp Gln Ser Asn Ser Tyr Leu Asp Gly Gln Ser Leu Ser  
180 185 190

Phe Ile Val Arg Ala Gly Asp Gly Arg Thr Val Thr Ala Asn Xaa Ile  
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Val Pro Arg Gly Trp Gln Phe Gly Gln Thr Phe Glu Gly Pro Gln Phe  
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 <223> n is a, c, g, or t

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